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IDENTIFIERS *Alaska Research on School Effectiveness Project; School Effectiveness

ABSTRACT

The Alaska School Effectiveness Project produced several reports in a series of reviews of research literature on such topics as instructional grouping: group size. Using an ERIC search and conventional library methods, the question raised was "Does small group instruction have a positive effect on the academic achievement of children in the primary grades and beyond?" After pointing out that there was nothing magical about the benefits conferred on young children's achievement as a result of small group instruction, researchers and reviewers focused on the conditions observed in small groups settings which were found to foster achievement gains. Two conclusions were drawn: first, children in primary grades evidence higher achievement levels when they receive instruction in closely supervised, highly structured small group settings, and second, for older elementary and secondary students factors other than grouping arrangements appear to influence achievement and effective outcomes. It is recommended that children in primary grades should receive as much small group instruction as possible, and reasons other than hoped-for outcomes in student achievement and attitude should guide decisions about grouping arrangements for older elementary and secondary students. The document includes item decision displays, the 17 citation bibliography, and individual item reports on the citations. (BRR)

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ED214703

Topic Summary Report

INSTRUCTIONAL GROUPING: GROUP SIZE

Research on School Effectiveness Project

Prepared for:

Alaska Department of Education
Office of Planning and Research

May 15, 1981

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Rc 013238

PREFACE

This report is one of several in a series of reviews of research literature conducted for the Alaska School Effectiveness Project. Each of the reports addresses a topic which is deemed to have an impact, actual or potential, on school effectiveness. All of the reports have been generated using the same general approach and a common reporting format.

The review process begins with a topical literature search using both computer based ERIC and conventional library methods. Articles and other documents found are analyzed and abstracted into a brief form called an Item Report. Each of the items is then judged against a set of pre-established criteria and ranked on a five-point scale. The collection of Item Reports are then examined for purposes of identifying issues. These issues are stated in the form of hypotheses. Each hypothesis thus generated becomes the subject of a Decision Display. A Decision Display is created by sorting the Item Reports into those which support or negate the hypothesis, are inconclusive, are badly flawed, or are irrelevant. One or more Decision Displays are generated for each topic addressed. A Summary Report is then generated from the consideration of the Decision Displays and the file of Item Reports. Thus, each complete report in the series consists of a Summary Report which is backed up by one or more Decision Displays which in turn are supported by a file of Item Reports. This format was designed to accommodate those readers who might wish to delve into various depths of detail.

This report is not intended to represent the "final word" on the topic considered. Rather, it represents the analysis of a particular collection of research documents at this time. There may be other documents that were not found because of time or other limitations. There may be new research published tomorrow. This present report represents our best judgment of available information at this time. This format allows for modification and re-analysis as new information becomes available or old information is re-interpreted.

For a more complete description of the analysis process see William G. Savard, Procedures for Research on School Effectiveness Project, Northwest Regional Educational Laboratory, December 10, 1980.

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Topic: Instructional Grouping: Group Size
Authors: Kathleen Cotton and W. G. Savard
Date: May 15, 1981

Overview

In addition to the sizeable body of research which has been conducted on class size,* many researchers have investigated grouping arrangements within classrooms to determine whether there is an optimum group size for teaching and learning. Such research is concerned with the relative effectiveness of whole class, small group and individualized instruction with students of various age/grade levels.

Research on instructional group size has been conducted in part because each of the commonly used grouping arrangements has its enthusiastic proponents. Among the supporters of each grouping format are people who contend that their preferred arrangement enhances student achievement and/or affective development, and others who have arrived at their preference because its use makes classroom activities easier to manage. If it can be established that a particular grouping arrangement is superior to others (either in general or for certain kinds of students and/or subjects), then changes in teacher behavior and materials selection would be implied for many schools. If, on the other hand, no particular grouping format shows significant advantage over any others, then local preferences should govern grouping decisions, materials selection and the delivery of instruction.

Are individualized instructional processes and materials essential to accommodate the learning differences of individual children? Do young children benefit from small group instruction? Or are factors other than group size responsible for student achievement levels and affective outcomes?

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*See Research on School Effectiveness Project Topic Summary Report: Class Size, Northwest Regional Educational Laboratory, December 12, 1980.

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Seventeen items on intructional group size were reviewed. Six were deleted from the analysis, either because they were not research studies or summaries, or because they fell outside the scope of this project. Of the eleven valid, relevant items remaining, seven were primary sources and four were secondary sources. Two were concerned with elementary level students, four with junior high, four with secondary and one with elementary and secondary. The outcome areas analyzed included reading (one study), math (three studies), science (one study), general achievement (four studies), and a combination of achievement and attitude (two studies).

Findings

Two major trends were noted among the studies reviewed. One has to do with the effects of instructional grouping on the achievement of young children and led to the hypothesis that small group instruction has a positive effect on the academic achievement of children in the primary grades. The three items reviewed which lent support to this hypothesis were all secondary sources which, collectively, reported the findings of more than 30 studies.

The researchers and reviewers of research studies were quick to point out that there is nothing magical about the benefits conferred on young children's achievement as a result of small group instruction. Rather, they focused on the conditions observed in small group settings which were found to foster achievement gains. These included: highly structured and systematic instructional patterns, more teacher interaction and immediate feedback/reinforcement, and greater amounts of student time-on-task. It was also noted in an investigation of the effects of independent study that this approach requires a degree of maturity and responsibility which is very often beyond the developmental level of primary students. Further, in one review,

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it was observed that unsupervised small group work is negatively correlated with achievement, lending further support to the notion that young children require interaction and guidance for successful learning. As one reviewer put it, "...at the early levels of instruction, pupils fare better with closer teacher supervision and help. Pupils at the upper levels appear to have acquired at least a sufficient number of classroom behaviors to be allowed more autonomy in the learning process."

A second hypothesis suggested by the studies reviewed is that, beyond the primary grades, students achieve equally well and have comparable attitudes and self-concepts whether they receive instruction individually, in small groups or in whole class settings. Although the findings of some researchers favored one grouping arrangement or another and some were inconclusive, the majority found no significant academic or affective differences among students in the various grouping formats. This trend among the studies held true for all kinds of comparisons--individualized vs. small group, individualized vs. whole class, small group vs. whole class and comparisons of all three formats.

In this group of studies fewer reasons were advanced to explain the findings than were offered by the researchers of primary level grouping arrangements. One researcher did, however, comment on the implication of the no-difference finding: "Schools initiating individualized programs [which had been compared with traditional instruction] should be prepared to justify the time and expense involved in terms of goals other than those based on cognitive achievement."

Conclusions

Based on the findings of the studies and reviews examined, two conclusions can be drawn. First, children in the primary grades evidence higher achievement levels when they receive instruction in closely supervised, highly

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structured small group settings. (The studies reviewed did not address affective outcomes for primary children.) Second, for older elementary and secondary students, factors other than grouping arrangements appear to influence achievement and affective outcomes, as significant differences were not found among students grouped in different ways.

Another subject addressed by some of the research on group size is the issue of ability grouping, which is discussed in another report in this series.*

Recommendations

Those reponsible for determining whether students will study alone, with partners, in small groups or in whole class settings are encouraged to consider the following recommendations:

1. Children in the primary grades should receive as much small group instruction as is possible. Within this instructional arrangement, these children should be closely supervised, receive frequent reinforcement and feedback, and their lessons should be highly structured.
2. Reasons other than hoped-for outcomes in student achievement and attitude should guide decisions about grouping arrangements for older elementary and secondary students. Student grouping decisions should be made which result in appropriate matches between grouping format, on the one hand, and factors such as instructional materials, teacher style and preferences, student learning styles, facilities available and costs involved.

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*See Research on School Effectiveness Topic Summary Report: Ability Grouping, Northwest Regional Educational Laboratory, May 15, 1981.

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INSTRUCTIONAL GROUPING: GROUP SIZE
Decision Display
#1

Restatement of issue as a hypothesis:

Small group instruction has a positive effect on the academic achievement of children in the primary grades.

Item Number	Short Title	Quality Rating of Study [ ]	
Items which tend to support hypothesis:			
176	Flor, 1980, Grouping for Elementary Reading	[4]	(studies of grades 1-4 support)
173	Borich & Kash, 1979, Georgia Review/ Teaching	[3]	(studies of grades 1-2 support)
175	SEDL/RX, 1979, Class Management/Grouping	[2]	(all support)

Items which tend to deny hypothesis:

None

Items which are inconclusive regarding the hypothesis:

None

Items which were excluded because they were weak:

None

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Items which were excluded because they were judged to be irrelevant to this hypothesis:

179	Webb, 1977, Individual and Group Learning*
181	Anderson, et al., 1978, First Grade Reading Study
182	Crawford, et al., 1976, Process-Product in Grades 2-3
184	Wang, 1979, Student Self-Management
185	Simmons & Wasik, 1976, Primary Class Management
188	Jorgensen, 1973, Effects of Group Size
191	Hirsch, 1976, Math Research Review*
195	Corbin, 1974, Individualized Math in Grades 7 & 8*
196	Englert, 1972, Grouping for Algebra*
197	Sinks, 1968, Jr. High Individualized Instruction*
199	Chang, 1977, Remedial Math Grouping
200	Hanneman, 1971, Independent Study of Geometry
203	Shumaker, 1972, IPI & Traditional Math Instruction*
206	Gabel & Herron, 1977, Effects of Grouping & Pacing*

*These studies and reviews dealt with grade levels other than primary.

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INSTRUCTIONAL GROUPING: GROUP SIZE
Decision Display
#2

Restatement of issue as a hypothesis:

Beyond the primary grades, students achieve equally well and have comparable attitudes and self-concepts whether they receive instruction individually, in small groups or in whole class settings.

Item Number	Short Title	Quality Rating of Study [ ]	
Items which tend to support hypothesis:			
206	Gabel & Herron, 1977, Effects of Grouping & Pacing	[4]	
195	Corbin, 1974, Individualized Math in Grades 7 & 8	[3]	
196	Engler, 1972, Grouping for Algebra	[3]	
191	Hirsch, 1976, Math Research Review	[3]	(Achievement-24 of 33 found no differences Attitude- 16 of 19 found no differences)
203	Shumaker, 1972, IDI & Traditional Math Instruction	[2]	
Items which tend to deny hypothesis:			
173	Borich & Kash, 1979, Georgia Review/ Teaching	[3]	(favored whole class instruction in grade 4)
200	Hanneman, 1971, Independent Study of Geometry	[3]	(favored independent study)
197	Sinks, 1968, Jr. High Individualized Instruction	[3]	(favored independent study)
Items which are inconclusive regarding the hypothesis:			
179	Webb, 1977, Individual and Group Learning	[4]	
175	SEDL/RX, 1979, Class Management/Grouping	[2]	

Items which were excluded because they were weak:

None

Items which were excluded because they were judged to be irrelevant to this hypothesis:

176	Flor, 1980, Grouping for Elementary Reading
181	Anderson, et al., 1978, First Grade Reading Study
182	Crawford, et al., 1976, Process-Product in Grades 2-3
184	Wang, 1979, Student Self-Management
185	Simmons & Wasik, 1976, Primary Class Management
188	Jorgensen, 1973, Effects of Group Size
199	Chang, 1977, Remedial Math Grouping

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BIBLIOGRAPHY

Item No.	Citation
181	Anderson, L. M., et al. The first-grade reading group study: Technical report of exerimental effects and process-outcome relationships. Volume I, R & D Report No. 4070. Michigan State University, Lansing and the University of Texas at Austin. R & D Center for Teacher Education, October 1978. (ERIC/EDRS No. ED 177 464)
173	Borich, G. D. & Kash, M. M. Review and discussion of the research of educational practices: Teaching personnel. Atlanta: Georgia Department of Education, 1979.
199	Chang, P. T. Small group instruction: A study in remedial mathematics. MATYC Journal, 1977, 11, 72-76.
195	Corbin, H. G. An individualized approach: An evaluation of cognitive and affective learning in seventh and eighth grade mathematics classes. University of Southern California, 1974. (Dissertation Abstracts, 34, May 1974, 6939A)
182	Crawford, J., et al. Process-product relationships in second and third grade classrooms. Report No. 7611, Research and Development Center for Teacher Education. The University of Texas at Austin, 1976. (ERIC/EDRS No. 148 888)
196	Englert, T. J. A comparative study of the effects on achievement and changes in attitude of senior high school students enrolled in the first year algebra under two different teaching approaches. Cornell University, 1972. (Dissertation Abstracts, 33, October 1972, 1076A-1077A)
176	Flor, R. A. A review of the literature concerning grouping plans for elementary reading instruction, 1965-1979. Reed College, 1980. (ERIC/EDRS Ed. No. 186 877)
206	Gabel, D. & Herron, J. D. The effects of grouping and pacing on learning rate, attitude and retention in ISCS Classrooms. Journal of Research in Science Teaching, 1977, 14, 385-399.

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Item No.	Citation
200	Hanneman, J. H. An experimental comparison of independent study and conventional group instruction in tenth grade geometry. The University of Florida, 1971. (Dissertation Abstracts, 32, May 1972, 6289A)
191	Hirsch, C. R. A review of research on individualized instruction in secondary mathematics. School Science and Mathematics, 1976,126, 499-507.
188	Jorgensen, B. W. Group size: Its effects on group performance and on individual acquisition of knowledge. Paper Presented at the Eastern Psychological Convention, Washington, D.C., May 1973.
175	SEDL Regional Exchange. Considering the research: Dimensions of basic skills improvement. Section V: Classroom Management. Austin, Texas: Southwest Educational Development Laboratory, 1979.
203	Shumaker, J. E. A comparison of study habits, study attitudes and academic achievement in mathematics in junior high school of students taught by individually prescribed instruction and students taught by traditional methods of instruction in elementary school. Doctoral Dissertation, University of Pittsburg, 1972. (Disseratation Abstracts 1973, 33, 6657A)
185	Simmons, J. T. & Wasik, B. H. Grouping strategies, peer influence, and free time as classroom management techniques with first- and third-grade children. Journal of School Psychology, 1976, 14, 322-332.
197	Sinks, T. A. How individualized instruction in junior high school science, mathematics, language arts, and social studies affects student achievement. University of Illinois, 1968. (Dissertation Abstracts, 1968, 30, July-August 1969)
184	Wang, M. C. The development of student self-management skills: Implications for effective use of instruction and learning time. Educational Horizons, 1979, 57, 169-174.
179	Webb, N. H. Learning in individual and small group settings. Technical Report No. 7, Office of Naval Research, Arlington, Virginia, October 1977. (ERIC/EDRS No. ED 151 699)

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SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 173 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Borich, G. D. & Kash, M. M. Review and discussion of the research of educational practices: Teaching personnel. Atlanta: Georgia Department of Education, 1979.

DESCRIPTORS: Group Size

SHORT TITLE: Borich & Kash, 1979, Georgia Review/Teaching

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a good summary of findings. However, since the source materials used were studies which examined a large range of teaching practices, it does not focus on the many instructional grouping-specific studies which have been conducted.

SYNOPSIS:

This is part of a series of research reviews commissioned by the Georgia Department of Education. Like others in the series, it presents an overview of the topic, in this case, the characteristics and behaviors of teaching personnel, and then provides research findings and a discussion of their implications.

The section of this paper devoted to classroom management practices includes findings concerning instructional grouping at the elementary level. The authors point out in their introductory comments that the findings presented have emerged from correlational studies and from analyses of previous reviews.

ITEM NUMBER: 173 SHORT TITLE: Borich & Kash, 1979
Georgia Review/Teaching

RESEARCHER'S FINDINGS:

Studies concerned with first and second graders found small group instruction to have the most beneficial effects on achievement. Those concerned with third and fourth graders found large group (often meaning whole class) instruction to be positively related to student achievement.

Conditions observed in small group settings which were found to foster achievement gains among younger children included highly structured and systematic instructional patterns, more teacher interaction and immediate feedback and reinforcement of pupil responses.

RESEARCHER'S CONCLUSIONS:

"Small group instruction is positively correlated with pupil achievement in the basic skills at the first and second grade levels.

"Whole class instruction is positively correlated with pupil achievement in mathematics and reading at the higher levels of elementary education.

"Pupil-to-pupil tutoring and unsupervised individual or small group work are negatively correlated with pupil achievement at the early levels of elementary education.... It appears that at the early levels of instruction, pupils fare better with closer teacher supervision and help. Pupils at the upper levels appear to have acquired at least a sufficient number of classroom behaviors to be allowed more autonomy in the learning process."

REVIEWER'S NOTES AND COMMENTS:

None

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 175 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: SEDL Regional Exchange. Considering the research: Dimensions of basic skills improvement. Section V: Classroom Management. Austin, Texas: Southwest Educational Development Laboratory, 1979.

DESCRIPTORS: Group Size

SHORT TITLE: SEDL RX, 1979, Class Management/Grouping

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 [2] 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a good summary of major findings, although it is really more an overview than a review of the research on grouping.

SYNOPSIS:

This is a report of recent research on educational practices which have been shown to foster basic skills improvement at the elementary and secondary levels.

The section on classroom management is devoted in part to presenting highlights from six recent research studies on instructional grouping. The focus here is on group size rather than the issue of ability grouping.

ITEM NUMBER: 175 SHORT TITLE: SEDL RX, 1979
Class Management/Grouping

RESEARCHER'S FINDINGS:

The primary finding is that differences in the most effective grouping practice were found to be a function of grade and subject matter.

Whole class teaching of elementary reading and mathematics does not seem to be productive. Low-ability secondary students, too, benefit from small group instruction.

There continues to be some difference of opinion as to the effectiveness of individualized instruction. Such instruction appears most effective when teachers are able to provide frequent instruction to each pupil.

Small group instruction has been shown to be positively related to time on task, which is, in turn, positively related to achievement. (See Research on School Efffectiveness Project summary on Time Factors in Learning.)

RESEARCHER'S CONCLUSIONS:

None drawn.

REVIEWER'S NOTES AND COMMENTS:

None

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 176 LOCATION: NWREL Info. Cntr./Microfiche

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Flor, R. A. A review of the literature concerning grouping plans for elementary reading instruction, 1965-1979. Reed College, 1980. (ERIC/EDRS Ed. No. 186 877)

DESCRIPTORS: Ability Grouping, Group Size

SHORT TITLE: Flor, 1980, Grouping for Elementary Reading

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a good review which clearly identifies patterns emerging from an array of research studies.

SYNOPSIS:

This review was undertaken in an attempt to answer the following question: Does research indicate which type of grouping for reading instruction is most effective in grades one to six? Twenty-one studies were reviewed.

ITEM NUMBER: 176 SHORT TITLE: Flor, 1980
Grouping for Elementary Reading

RESEARCHER'S FINDINGS:

Beginning instruction in reading in grades 1 and 2 was most effective in self-contained classrooms with a limited number of pupils. Sex grouping for reading favored boys in the first grade and was detrimental to girls. Studies of non-graded classes were almost equally divided for and against effective reading instruction.

In grades 3 and 4, homogeneous, small classes were found to be effective, as was a combination of heterogeneous grouping and individualized instruction for fourth graders.

For grades 5 and 6, homogeneous grouping for high ability students was favored, with heterogeneous grouping being favored for average and below average students.

RESEARCHER'S CONCLUSIONS:

None drawn.

REVIEWER'S NOTES AND COMMENTS:

None

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 179 LOCATION: NWREL Info. Cntr./Microfiche

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Webb, N. H. Learning in individual and small group settings. Technical Report No. 7, Office of Naval Research, Arlington, Virginia, October 1977. (ERIC/EDRS No. ED 151 699)

DESCRIPTORS: Ability Grouping, Group Size

SHORT TITLE: Webb, 1977, Individual and Group Learning

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a carefully done study which identifies group factors that may influence student behavior and achievement.

SYNOPSIS:

This study investigated the effects of individual learning settings, mixed-ability group settings and uniform-ability settings on the mathematics achievement of 11th grade students. In Part I of the study, 48 students worked both individually and in 12 four-person groups (some mixed-ability and some uniform-ability), and in Part II, 18 students performed tasks individually. Pre-tests, immediate post-tests and delayed post-tests were administered; and student task behavior was observed and recorded.

ITEM NUMBER: 179 SHORT TITLE: Webb, 1977
Individual and Group Learning

RESEARCHER'S FINDINGS:

Mixed-ability grouping had the most positive effect on achievement, followed by individual learning and then uniform-ability grouping. It was also found that in the mixed-ability groups, high-ability students explained to less able students. In uniform-ability groups, high-ability students were less vocal. Those students who assisted others in their group to learn showed excellent delayed performance; those who did not showed poor delayed performance. Active participation was beneficial for all ability levels.

RESEARCHER'S CONCLUSIONS:

The effect of the learning setting depends on the ability of the student, the ability of the student relative to the ability of the group, and the role the student plays in the group.

REVIEWER'S NOTES AND COMMENTS:

None

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 181 LOCATION: NWREL Info. Cntr./Microfiche

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Anderson, L. M., et al. The first-grade reading group study: Technical report of exerimental effects and process-outcome relationships. Volume I, R & D Report No. 4070. Michigan State University, Lansing and the University of Texas at Austin. R & D Center for Teacher Education, October 1978. (ERIC/EDRS No. ED 177 464)

DESCRIPTORS: Group Size

SHORT TITLE: Anderson, et al., 1978, First Grade Reading Study

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RELEVANT ___ IRRELEVANT ✓ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

This study looked at the effects of various instructional practices within groups. It did not look at the effects of grouping arrangements.

ITEM NUMBER: 181 SHORT TITLE: Anderson, et al., 1978
First Grade Reading Study

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 182 LOCATION: NWREL Info. Cntr/Microfiche

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Crawford, J., et al. Process-product relationships in second and third grade classrooms. Report No. 7611, Research and Development Center for Teacher Education. The University of Texas at Austin, 1976. (ERIC/EDRS No. 148 888)

DESCRIPTORS: Group Size

SHORT TITLE: Crawford, et al., 1976, Process-Product in Grades 2-3

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS X

RELEVANT ___ IRRELEVANT ✓ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

This study purports to identify effective classroom processes for different kinds of situations, including the size of instructional groups. The influence of grouping itself was not addressed directly.

ITEM NUMBER: 182 SHORT TITLE: Crawford, et al., 1976
Process-Product in Grades 2-3

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 184 LOCATION: NWREL Info. Cntr./Periodicals

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Wang, M. C. The development of student self-management skills: Implications for effective use of instruction and learning time. Educational horizons, 1979, 57, 169-174.

DESCRIPTORS: Group Size

SHORT TITLE: Wang, 1979, Student Self-Management

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS X

RELEVANT ___ IRRELEVANT ✓ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

Mention is made in this article of research supporting various grouping patterns, but it is neither a study nor a review of instructional grouping.

ITEM NUMBER: 184 SHORT TITLE: Wang, 1979
Student Self-Management

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 185 LOCATION: PSU Library

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Simmons, J. T. & Wasik, B. H. Grouping strategies, peer influence, and free time as classroom management techniques with first- and third-grade children. Journal of School Psychology, 1976, 14, 322-332.

DESCRIPTORS: Group Size

SHORT TITLE: Simmons & Wasik, 1976, Primary Class Management

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS X

RELEVANT ___ IRRELEVANT ✓ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

This study looked at the effects of grouping strategies and other means of influencing classroom behavior. Certain methods seem to make for a more orderly classroom, but their effect on student outcomes was not investigated.

ITEM NUMBER: 185 SHORT TITLE: Simmons & Wasik, 1976
Primary Class Management

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 188 LOCATION: NWREL Info. Cntr./Microfiche

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Jorgensen, B. W. Group size: Its effects on group performance and on individual acquisition of knowledge. Paper Presented at the Eastern Psychological Convention, Washington, D.C., May 1973.

DESCRIPTORS: Group Size

SHORT TITLE: Jorgensen, 1973, Effects of Group Size

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS X

RELEVANT ___ IRRELEVANT ✓ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

The study involved college-level students. It did, however, find that group learning can facilitate the acquisition of information more effectively than individual study. Of the group sizes studied (1, 2, 3, 5 and 7), groups of seven performed best.

ITEM NUMBER: 188 SHORT TITLE: Jorgensen, 1973
Effects of Group Size

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 191 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Hirsch, C. R. A review of research on individualized instruction in secondary mathematics. School Science and Mathematics, 1976, 76, 499-507.

DESCRIPTORS: Group Size

SHORT TITLE: Hirsch, 1976, Math Research Review

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE X DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a good review and includes a set of tables which summarize the studies examined.

SYNOPSIS:

This is a review of: (1) 33 studies in which individualized instruction and group instructional methods were compared in terms of learning gains produced; and (2) 19 studies in which the attitudes toward math of students in the two instructional settings were compared. Some of these studies also examined the individualized approach in relation to learner characteristics, and two compared teaching methods utilized within the two instructional approaches.

ITEM NUMBER: 191 SHORT TITLE: Hirsch, 1976
Math Research Review

RESEARCHER'S FINDINGS:

Learning Gains: Five of the 33 studies reviewed reported significant math learning gains in favor of individualized instruction, four reported significant gains in favor of group-based instruction, and 24 found no statistically significant differences.

Attitudes: Sixteen (of 19) studies reported no significant differences in attitude toward math on the part of students receiving the two types of instruction. Three found more positive attitudes on the part of students receiving individualized instruction.

Student Characteristics: The researchers examined a variety of different student characteristics-instructional approach relationships. Findings concerning ability, learning rate, self-esteem, etc. were mixed and do not lead to generalizable statements.

Teaching Methods: One (of 2) studies found no differences in teaching methods in individualized vs. group instruction. The other found that teachers using the individualized approach spent more out-of-class preparation time.

RESEARCHER'S CONCLUSIONS:

The conclusions are in the form of recommendations for future research:

1. Longitudinal studies should be undertaken to determine the effects of individualized vs. group instruction on learning and attitude of students.

2. Future research should consider the effect of aptitude variables.

3. Transfer-of-learning should also be considered.

4. The effects of individualized instruction on problem-solving and long-term retention should be investigated.

5. The role of the teacher in individualized instruction warrants investigation.

6. The effect of individualized instruction upon the individual learner warrants consideration.

REVIEWER'S NOTES AND COMMENTS:

A copy of the review may be found in the backup file on Group Size.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 195 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Corbin, H. G. An individualized approach: An evaluation of cognitive and affective learning in seventh and eighth grade mathematics classes. University of Southern California, 1974. (Dissertation Abstracts, 34, May 1974, 6939A)

DESCRIPTORS: Group Size

SHORT TITLE: Corbin, 1974, Individualized Math in Grades 7 & 8

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT X

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This study convincingly demonstrates that individualized and traditional instruction have similar effects on achievement and attitude.

SYNOPSIS:

The purposes of this study were: (1) to examine the nature and degree of cognitive growth in individualized versus traditional mathematics instruction, and (2) to examine the relationships of individualized and traditional methods to student attitudes. Seventh and eighth grade students were randomly assigned to experimental (individualized instruction) and control (traditional instruction) groups. There were 54 experimental and 57 control group seventh graders, and 50 experimental and 43 control group eighth graders. The two arithmetic subtests of the Iowa Test of Basic Skills were administered, as was an affective instrument.

ITEM NUMBER: 195 SHORT TITLE: Corbin, 1974
Individualized Math in Grades 7 & 8

RESEARCHER'S FINDINGS:

No significant achievement or attitude differences were found between the traditionally instructed and individually instructed students in either seventh or eighth grade.

RESEARCHER'S CONCLUSIONS:

Individualized learning students can learn as well and have equally positive attitudes as traditionally instructed students. Individualized programs which demand more student responsibility require a learning period during which students can adjust to the demands of this responsibility. Schools initiating individualized programs should be prepared to justify the time and expense involved in terms of goals other than those based on cognitive achievement.

REVIEWER'S NOTES AND COMMENTS:

A copy of the abstract may be found in the backup file on Group Size.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 196 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Englert, T. J. A comparative study of the effects on achievement and changes in attitude of senior high school students enrolled in the first year algebra under two different teaching approaches. Cornell University, 1972. (Dissertation Abstracts, 33, October 1972, 1076A-1077A)

DESCRIPTORS: Group Size

SHORT TITLE: Englert, 1972, Grouping for Algebra

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT X

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 [2] 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

Sample size is unspecified and the structure of the experiment created some inconclusive results.

SYNOPSIS:

The purpose of this study was to compare the effects on achievement and attitude of traditional group-oriented instruction, on the one hand, and several kinds of individualized instruction, on the other. All senior high school students enrolled in first year algebra at a Cleveland, Ohio high shool participated. Each of the three teachers of first-year algebra taught one class in a traditional (group-oriented) manner. In addition, one taught a class in which students studied on their own, one instructed a class in which each student studied with another student, and one taught each student individually. Students were pre- and posttested with both an achievement test and an attitude test. Other tests were administered to reveal differences, if any, among the instructional effectiveness of the three teachers.

ITEM NUMBER: 196 SHORT TITLE: Englert, 1972
Grouping for Algebra

RESEARCHER'S FINDINGS:

The control group of Teacher A performed significantly better than the experimental group on each of the achievement tests. There were no significant differences in the groups of each teacher on the attitude tests before and after receiving instruction. There were no significant differences in the groups of Teachers A and C on the gains or losses from the pretests to the posttests. The experimental group of Teacher B was significantly better than the control group when results of the arithmetic pre- and postetest were compared. No significant differences were found in the groups of Teacher B when the results of the other pretests and posttests were compared.

RESEARCHER'S CONCLUSIONS:

"(1) No significant differences were found in respect to changes in attitude...(2) No significant differences were found in the two groups of two teachers with respect to achievement. (3) The use of two pretests and one posttest resulted in inconclusive results for the groups of the third teacher with respect to achievement. (4) Individualized instruction is feasible for classes with an enrollment of at least twenty."

REVIEWER'S NOTES AND COMMENTS:

A copy of the abstract may be found in the backup file on Group Size.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 197 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Sinks, T. A. How individualized instruction in junior high school science, mathematics, language arts, and social studies affects student achievement. University of Illinois, 1968. (Dissertation Abstracts, 1968, 30, July-August 1969)

DESCRIPTORS: Group Size

SHORT TITLE: Sinks, 1968, Jr. High Individualized Instruction

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT X

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This study appears to be well-structured and carried out, although the full description with numerical data is not provided in the abstract.

SYNOPSIS:

The purpose of this study was to compare the effects of individualized instruction and traditional, textbook-oriented group instruction on achievement in four curricular areas. One-hundred eight seventh graders participated. Control and experimental students received instruction in the same content from the same teachers over the same time period. Attitude, behavior and learning strategies data were gathered via surveys, interviews, questionnaires, observations and critiques.

ITEM NUMBER: 197 SHORT TITLE: Sinks, 1968
Jr. High Individualized Instruction

RESEARCHER'S FINDINGS:

Experimental students made greater achievement gains than control students in all four curricular areas. They also evidencd desirable changes in behavior, attitude and learning strategies used.

RESEARCHER'S CONCLUSIONS:

"Our conclusion is that the individually prescribed curriula in science, social studies, mathematics and language arts accounted for increased gains in achievement scores on the STEP [Sequential Tests of Educational Progress] tests in these areas. It also accounted for the desirable changes in behavior, attitude, and learning strategies of the learners."

REVIEWER'S NOTES AND COMMENTS:

A copy of the abstract may be found in the backup file on Group Size.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 199 LOCATION: PSU Library

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Chang, P. T. Small group instruction: A study in remedial mathematics. MATYC Journal, 1977, 11, 72-76.

DESCRIPTORS: Group Size

SHORT TITLE: Chang, 1977, Remedial Math Grouping

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS X

RELEVANT ___ IRRELEVANT ✓ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

SYNOPSIS:

This study was conducted with postsecondary students and is, therefore, outside the scope of the Research on School Effectiveness Project. It was found, however, that small group instruction produced more positive results than lecture/demonstration.

ITEM NUMBER: 199 SHORT TITLE: Chang, 1977
Remedial Math Grouping

RESEARCHER'S FINDINGS:

RESEARCHER'S CONCLUSIONS:

REVIEWER'S NOTES AND COMMENTS:

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 200 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Hanneman, J. H. An experimental comparison of independent study and conventional group instruction in tenth grade geometry. The University of Florida, 1971. (Dissertation Abstracts, 32, May 1972, 6289A)

DESCRIPTORS: Group Size

SHORT TITLE: Hanneman, 1971, Independent Study of Geometry

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT X

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

As with most Dissertation Abstracts, detail on the study's methods is sparse. Though the sample population was small, this appears to have been a well-designed and conducted study.

SYNOPSIS:

This study was designed to determine the relative effects of conventional group instruction and independent study on the geometry performance, pacing and attitude of students. Four classes of tenth graders participated. All received seven weeks of conventional instruction, after which two classes changed to a program of independent study using five self-instructional learning activity packages which accompanied the main geometry text. Students were pre- and posttested in geometry, given an attitude questionnaire, and data on their instructional pace were recorded.

ITEM NUMBER: 200 SHORT TITLE: Hanneman, 1971
Independent Study of Geometry

RESEARCHER'S FINDINGS:

There was no significant difference between the performnce of the experimental and control groups on initial tests, nor did achievement growth rate of high- and low-achieving students differ significantly. On the pre-tests taken by the experimental group, however, significantly better performance than the control group was observed. The experimental group developed a more positive attitude toward math during the course of the study; control students evidenced a modest decline in attitude. A post-experiment questionnaire indicated that 40 experimental group students would prefer to learn math through independent study, with only three expressing a desire to return to conventional classroom instruction.

RESEARCHER'S CONCLUSIONS:

None drawn.

REVIEWER'S NOTES AND COMMENTS:

A copy of the abstract may be found in the backup file on Group Size.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 203 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Shumaker, J. E. A comparison of study habits, study attitudes and academic achievement in mathematics in junior high school of students taught by individually prescribed instruction and students taught by traditional methods of instruction in elementary school. Doctoral Dissertation, University of Pittsburg, 1972. (Disseratation Abstracts 1973, 33, 6657A)

DESCRIPTORS: Group Size

SHORT TITLE: Shumaker, 1973, IPI & Traditional Math Instruction

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE ___ SECONDARY SOURCE ___ DISSERTATION ABSTRACT X

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 [3] 4 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a well-done correlational study.

SYNOPSIS:

The goal of this study was to determine how students who received individually prescribed instruction (IPI) in elementary school compared with students who had a non-IPI elementary school background in terms of mathematics achievement, study habits and study attitudes. The sample consisted of 114 seventh graders in a junior high school which employed traditional instructional methods. Half of those had an IPI background and half did not; these were arranged in pairs of students whose socioeconomic status and general achievement were similar. Students were tested in mathematics concepts, computation and applications and also completed an instrument called Survey of Study Habits and Attitudes.

ITEM NUMBER: 203 SHORT TITLE: Shumaker, 1973
IPI & Traditional Math Instruction

RESEARCHER'S FINDINGS:

IPI and non-IPI students did not differ significantly on math achievement. This was also true of the study habits and attitudes comparison, although differences favoring IPI students were noted at the eight percent (nearly statistically significant) level.

RESEARCHER'S CONCLUSIONS:

"The marked differences in the study habits and attitudes in favor of the IPI students suggest that further attention to the IPI program features should contribute to these two qualities might lead to significant differences in favor of such a revised version of the program."

REVIEWER'S NOTES AND COMMENTS:

A copy of the abstract may be found in the backup file on Group Size.

SCHOOL EFFECTIVENESS PROJECT, ITEM REPORT

ITEM NUMBER: 206 LOCATION: RSE Project Files

REVIEWER: K. Cotton DATE REVIEWED: April 1981

CITATION: Gabel, D. & Herron, J. D. The effects of grouping and pacing on learning rate, attitude and retention in ISCS Classrooms. Journal of Research in Science Teaching, 1977, 14, 385-399.

DESCRIPTORS: Ability Grouping, Group Size

SHORT TITLE: Gabel & Herron, 1977, Effects of Grouping and Pacing

SKIMMED, REJECTED FOR PROJECT PURPOSES, NO ANALYSIS ___

RELEVANT ✓ IRRELEVANT ___ FOR PRESENT PURPOSE

PRIMARY SOURCE X SECONDARY SOURCE ___ DISSERTATION ABSTRACT ___

RATING OF QUALITY OF STUDY (for project purposes):

(Weak) 1 2 3 [4] 5 (Strong)

BRIEF DISCUSSION OF RATING:

This is a carefully designed and conducted study.

SYNOPSIS:

This study was designed to determine the effects of different grouping and pacing arrangements on learning rate, retention and attitude. The subjects were 1,022 seventh grade students enrolled in Intermediate Science Curriculum Study (ISCS) programs in rural and urban schools. Students were given mental ability tests and then studied the ISCS materials (1) alone, (2) with a partner of similar ability or (3) with a partner of different ability; and either (1) with imposed deadlines or (2) self-paced. Chapter, unit and attitude tests were administered. Data for rural and urban students were analyzed separately.

ITEM NUMBER: 206 SHORT TITLE: Gabel & Herron, 1977
Effects of Grouping and Pacing

RESEARCHER'S FINDINGS:*

Learning Rate: Generally, city children who worked with a partner learned more rapidly than those who worked alone; for rural children the opposite was true. Kind of pacing had no effect on the learning rate of rural children, but for the urban children who worked alone, self-pacing increased their learning rate. This was especially true for low- and middle-ability children.

Retention: For both rural and urban children, retention was improved if learning was self-paced. Rural children who worked with a partner had better retention; there was no difference for urban children. There were virtually no differences in retention scores for self-paced students of the same mental ability whether students worked alone or with partners.

Attitude: All students had a favorable attitude toward the ISCS program, with urban children having the most favorable attitudes. There was no significant difference between the attitudes of children who had studied with deadlines or self-pacing, or between students who worked alone or with a partner.

RESEARCHER'S CONCLUSIONS:

High-ability students learn faster than low-ability students.

In general, students learn more effectively when they are allowed to pace themselves than when they are given deadlines, though there are some exceptions to this.

For low-ability students, working alone seems most beneficial to learning rate, but for some low-ability students working with a partner improved retention. Low-ability students appear to benefit from self-paced learning.

REVIEWER'S NOTES AND COMMENTS:

A copy of the report may be found in the backup files on Ability Grouping and on Group Size.

*These are selected from the many pages of findings generated due to the study having so many cells.